

Profile of children diagnosed with cerebral palsy at Universitas Hospital, Bloemfontein, 1991-2001

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To the Editor: Cerebral palsy is a term used for a group of non-progressive but often changing motor deficits, which are a result of a lesion of the brain occurring at an early developmental stage.

Cerebral palsy may be classified physiologically or topographically. Physiologically, there are five types of cerebral palsy¹: spastic, dyskinetic, ataxic, hypotonic, and mixed. Topographically, there are six types¹: hemiplegia (one arm and leg on the same side of the body are affected), monoplegia (one limb is affected), diplegia (both legs more affected than arms), quadriplegia (all limbs, body and face symmetrically affected), triplegia (three limbs are affected, usually both legs and one arm), and double hemiplegia (both sides of the body are affected asymmetrically, arms usually more than the legs).

Cerebral palsy not only results in motor deficits, but also in cognitive, developmental and personality problems. People with cerebral palsy may experience the following co-morbid disorders: epilepsy, mental retardation, behavioural problems or sensory defects. Epilepsy is prevalent in 15-55% of children with cerebral palsy² and the risk of epilepsy increases by 71% if there is concomitant mental retardation. Various therapies for cerebral palsy include physiotherapy, occupational therapy, surgery, nutritional programmes and medication.

The aim of this study was to determine the profile of diagnosis, aetiology, co-morbidity and therapy of all children diagnosed with cerebral palsy at the Universitas Hospital in Bloemfontein from 1991 to 2001. The data form used in this retrospective descriptive study included the following sections: demographics, pregnancy

and birth details, development, co-morbidity, and possible therapies. Patients were included if one of the five physiological or six topographic forms of cerebral palsy were present during the first three years and excluded if the aetiology manifested after the age of three years.

A total of 157 patients (78 male and 79 female) were included in the study. More than half the patients were black (57%), 36% were white, and 7% were of mixed race. There was one Asian patient. The diagnostic distribution based on the physiological type was as follows: 75% spastic, 16% mixed and 7% hypotonic. Ataxic and dyskinetic cerebral palsy was seldom diagnosed, at 2% and 1% respectively. The diagnoses based on the topographic distribution were more variable: 41% quadriplegic, 27% hemiplegic, 23% diplegic and 9% double hemiplegic. Triplegia and monoplegia were never diagnosed. The mother's pregnancy, gestation period and birth details are given in Table I.

The patients experienced a diverse range of co-morbid disorders. The most common co-morbid disorders were speech and language impairments (71%), followed by severe mental retardation (62%), epilepsy (39%), mild mental retardation (36%) and visual impairment (22%). Mental retardation was determined by school reports and by the doctors who treated the patients. Hearing and vision were tested by the Departments of Speech Therapy and Ophthalmology respectively.

Therapy concentrated primarily on learning and physical disabilities, with 71% and 69% of the patients receiving occupational therapy and physiotherapy respectively. Only a few patients (14%) received speech therapy. Thirty-nine per

cent of the children with cerebral palsy and epilepsy were receiving anti-epileptic medication. Most patients (78%) had not received any aids (e.g. special chairs, walkers, wheelchairs, etc.). Orthopaedic intervention is not readily available for the majority of children.

Three similarities were apparent when this study was compared to the literature. Firstly, 68% of the patients were born after a normal gestation period. This result is similar to that of Pharoah *et al.*, who found that two-thirds of their study population were normal-term babies.³ Secondly, 21% of the patients suffered from asphyxiation directly after birth, which is similar to the findings of Torfs *et al.*, who recorded that 22% of their patients suffered from asphyxia.⁴ Thirdly, most patients (73%) were spastic, which fell within slightly higher (86%)⁵ and lower (64%)⁶ recorded values.

The aetiology of cerebral palsy in this study points to the gestational age and the period surrounding labour, rather than to the pregnancy itself. Although most patients had speech and language problems, few received speech therapy. Epilepsy, however, was well controlled. Most patients suffered from the spastic form of the symptom complex, but only 1% of the patients received Botulin toxin, which reduces spasticity. Most patients also did not receive aids, which are costly.


In an academic setting, it is possible to manage children with cerebral palsy in a multidisciplinary fashion. Yet, even under these circumstances the children are underserved as far as speech therapy and the provision of physical aids are concerned. There is no doubt that this population would be best served by a one-stop facility. If tertiary hospitals are not able to render a comprehensive service, what level of care is available at secondary, and especially at primary, levels of care?

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Table I: Pregnancy and birth details.

| Details | Frequency | Percentage | |
|---|-------------------------------------|------------|----|
| Mother's pregnancy (n=113) ^a : | Uneventful | 79 | 70 |
| | Twins | 7 | 6 |
| | Hypertension | 7 | 6 |
| | Pre-eclampsia | 7 | 6 |
| | Bladder infection | 4 | 4 |
| | Possible miscarriage | 3 | 3 |
| | Breach | 3 | 3 |
| Gestation period (n=133): | Premature (<32 weeks) | 31 | 23 |
| | Premature (32-37 weeks) | 11 | 8 |
| | Normal (37-42 weeks) | 90 | 68 |
| | Post-mature (>42 weeks) | 1 | 1 |
| Birth (n=123): | Normal delivery, uneventful | 72 | 59 |
| | Normal delivery, with complications | 14 | 11 |
| | Caesarean ^b | 25 | 20 |
| | Forceps/vacuum extraction | 12 | 10 |
| Post-natal period (n=132): | Uneventful | 50 | 38 |
| | Asphyxia | 28 | 21 |
| | Mechanical ventilation | 35 | 27 |
| | Convulsions within 48 hours | 9 | 7 |
| | Jaundice | 9 | 7 |
| | Hydrocephalus | 8 | 5 |
| | Sepsis | 5 | 4 |
| Cardiac abnormalities | 5 | 4 | |

^aMore than one complication could occur
^b11% were planned